

REMARKS

Disposition of the Claims

Claims 34 through 37 are added. Claims 32-37 are now pending. The Office Action summary incorrectly states the disposition of the claims. Applicant would respectfully request that the Examiner update the Disposition of the Claims to correctly reflect their status:

Claims 1-27 have been canceled.

Claims 28-31 are withdrawn from consideration.

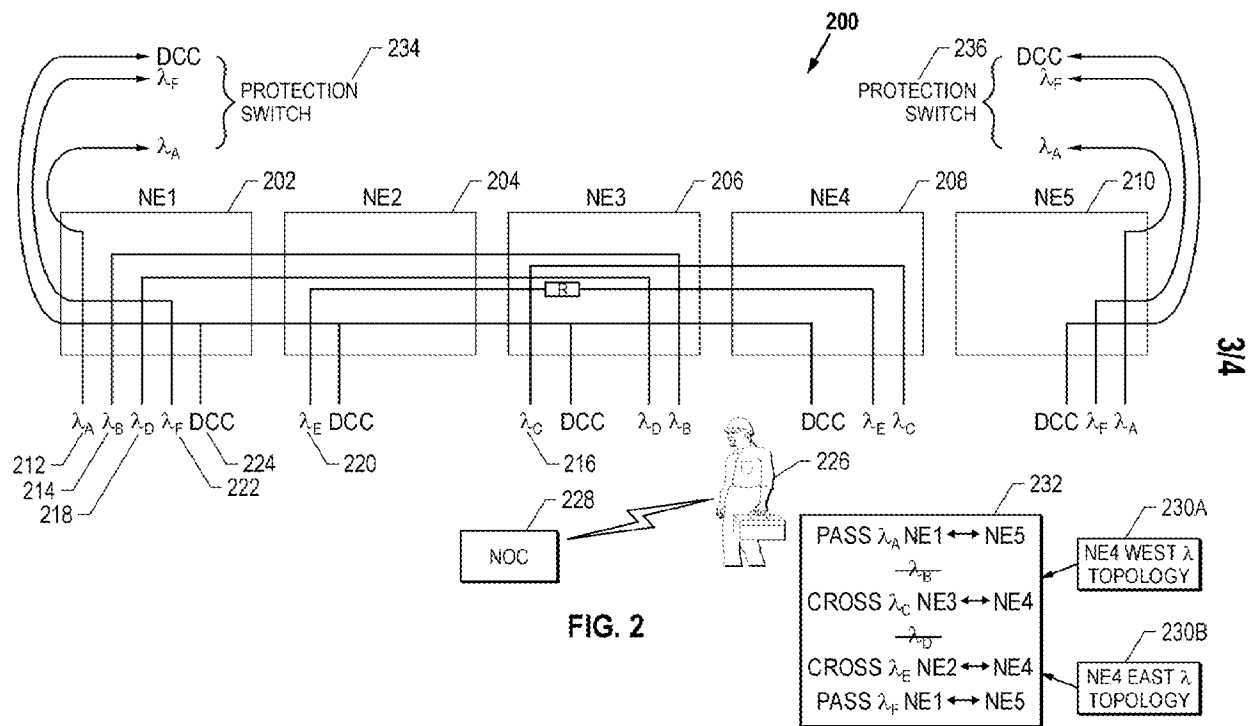
Claims 32-33 are pending.

Claim Rejections under 35 U.S.C. §112

The Office Action rejected claims 32-33 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement, stating that the claims contain subject matter which was not described in the specification. The Office Action states that the specification does not teach how a wavelength topology map from the adjacent network element sent in a first direction includes a map portion that specifies the wavelengths being transmitted by the adjacent network element in a second direction. Claim 32 has been amended above to broaden the claim and for clarity. Claim 32 does not state that a wavelength topology map from the adjacent network element sent in a first direction includes a map portion that specifies the wavelengths being transmitted by the adjacent network element in a second direction.

Claim 32 states that the network element includes a plurality of transponders for generating wavelengths transmitted in a first direction to an adjacent network element over the optical network and a dedicated overhead wavelength channel for receiving a wavelength topology map from the adjacent network element in the optical network, wherein the wavelength topology map includes a map portion that specifies the wavelengths being transmitted by the adjacent network element in a second direction to the network element. For example, in an embodiment described in paragraphs 21 and 22 of the corresponding US Published Application No. 20050141437, an originating NE (such as NE2 shown in Figure 2 below) inserts a wavelength to an adjacent NE in a first direction (such as wavelength λ_f to NE4 in the east direction). The adjacent NE checks to see if it is inserting the same wavelength back towards the originating NE that provided the wavelength information, i.e., the adjacent NE checks to see if it

forms a cross-connection with the originating NE that provided the wavelength information. If the adjacent NE is inserting the wavelength back upstream towards the originating NE, then the adjacent NE sends wavelength information back to the originating NE such that the originating NE has information about the destination of the signal it just inserted. On the other hand, if the adjacent NE does not insert the wavelength back towards the originating NE, then the wavelength is passed through and the adjacent NE updates its wavelength information to reflect that the wavelength is a passthrough wavelength sourced from the originating NE.



Since the subject matter of claims 32 and 33 are described by the specification, claims 32 and 33 are supported under 35 U.S.C. §112 by the specification. For these reasons, the rejection under 35 U.S.C. §112 is respectfully traversed and requested to be withdrawn.

Claim Rejections under 35 U.S.C. §103

The Office Action rejected claims 32 and 33 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5781537 to Ramaswami, et al (the Ramaswami reference) in view of US Application No. 2002/01781886 to Wu et al (the Wu reference). This rejection is

traversed because neither the Ramaswami reference or the Wu reference, either alone or in combination, disclose or suggest the requirements of the claims.

Independent Claim 32 and dependent claims 33 through 34

Independent Claim 32 states a plurality of transponders for generating wavelengths transmitted in a first direction to an adjacent network element over the optical network; a dedicated overhead wavelength channel for receiving a wavelength topology map from the adjacent network element in the optical network, wherein the wavelength topology map includes a map portion that specifies the wavelengths being transmitted by the adjacent network element in a second direction to the optical network element; wherein said optical network element is operable to determine passthrough wavelengths from the wavelength topology map.

The Office Action cites column 7, lines 29 through 60 of the Ramaswami reference that describes a topology database. It states that:

“Every node in the network maintains a topology database that reflects its knowledge of the nodes that are up, the highest timestamp of update messages received from each such node, the links that are up next to each node and their wavelength usage. Whenever a node receives an update message about another node with a later timestamp than the stored one, it updates the corresponding information and propagates it by sending the update message to all neighbors <E1>-<E4>. The topology information is used by nodes to decide the path of a new lightpath it intends to establish.”

As stated above, the topology information is used to decide the path of a new lightpath it intends to establish. There is no description of a wavelength topology maps from the adjacent network element in the optical network that specifies the wavelengths being transmitted by the adjacent network element in a second direction to the optical network element; wherein said optical network element is operable to determine passthrough wavelengths from the wavelength topology map.

In fact, the Ramaswami reference teaches away from the requirements of claim 32 of a wavelength topology map from the adjacent network element in the optical network, wherein the wavelength topology map includes a map portion that specifies the wavelengths being

transmitted by the adjacent network element in a second direction to the optical network element. The Ramaswami reference states in column 4 line 64 through column 5, line 10 that:

“Every lightpath is identified by a lightpath-id that consists of a quadruple (originator, destination, wavelength, sequence number). Two different lightpaths may carry the same sequence number if they have different originators, destinations or wavelengths. The lightpath-id is assigned by the originator and we assume that the sequence number contains enough bits so that no wrap around occurs. This means that in our protocol we can assume that once a lightpath-id quadruple is assigned, it will never be reassigned to another lightpath (in practice, it may be reassigned a very long time after the previous one was taken down, long enough to ensure that there is no trace of the old lightpath in the entire network). The lightpath-id is carried in all control messages related to the lightpath.”

As described above, the Ramaswami teaches that a lightpath-id is assigned by an originator of the light-path and is sent in control messages related to a lightpath. This method of a light-path id teaches away from exchanging a wavelength topology map and determining passthrough wavelengths from the wavelength topology map.

The Wu reference fails to add to the teachings of the Ramaswami reference. Nowhere does the Wu reference disclose that a network element with an optical architecture updates topology maps or determines passthrough wavelengths at each network element.

Furthermore, the combination of the reference fails to suggest the requirements of the claims. Neither reference discloses or suggests the problem solved by the present invention, described in paragraph 4, of a craftpersons interfacing with an optical network element not having an indication of passthrough traffic in the network element to check prior to maintenance operations. As stated in paragraph 31, by updating the first and second topology maps, the source and destination information may be discovered for all wavelengths in the network and the updated wavelength topology maps may be utilized to provide a craft person an indication of the passthrough wavelengths in the network elements. Thus, the combination of the Ramaswami reference and the Wu reference fail to disclose or suggest the requirements of claim 32.

The Office Action has failed to prove that the cited references disclose or suggest the elements of claim 32 under 35 U.S.C. §103. The dependent claims 33 through 35 add further patentable matter to Claim 32 and thus are further differentiated and patentable under 35 U.S.C. §103 over the cited references.

Independent claim 36 and dependent claim 37

Independent claim 36 states receiving a first wavelength topology map from the first adjacent network element in the optical network over a dedicated overhead wavelength channel, wherein the first wavelength topology map includes a first map portion that specifies the wavelengths being transmitted by the first adjacent network element in a first direction to the network element; receiving a second wavelength topology map from a second adjacent network element in the optical network over a dedicated overhead wavelength channel, wherein the second wavelength topology map includes a second map portion that specifies the wavelengths being transmitted by the second adjacent network element in a second direction to the network element; determining passthrough wavelengths in response to wavelengths transmitted in a first direction by the network element are not equal to wavelengths specified in the second wavelength topology map transmitted by the second adjacent network element in a second direction to the network element; and determining passthrough wavelengths in response to wavelengths transmitted in a second direction by the network element are not equal to wavelengths specified in the first wavelength topology map transmitted by the first adjacent network element in a first direction to the network element.

The cited references fail to disclose or teach the elements of claim 36 and dependent claim 37 for similar reasons stated with respect to claim 32.

CONCLUSION

For the above reasons, the foregoing amendment places the Application in condition for allowance. Therefore, it is respectfully requested that the rejection of the claims be withdrawn and full allowance granted. Should the Examiner have any further comments or suggestions, please contact Jessica Smith at (972) 240-5324.

Respectfully submitted,
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